U.S. Market Status and Considerations Post-COVID

Briefing to ACCRES

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AGENDA

- U.S. VC Market Analysis
- Economic Levers
- Strategic Foresight

NASDAQ is near a 5-year high

As economy is ravaged by COVID-19, tech stocks ramp up

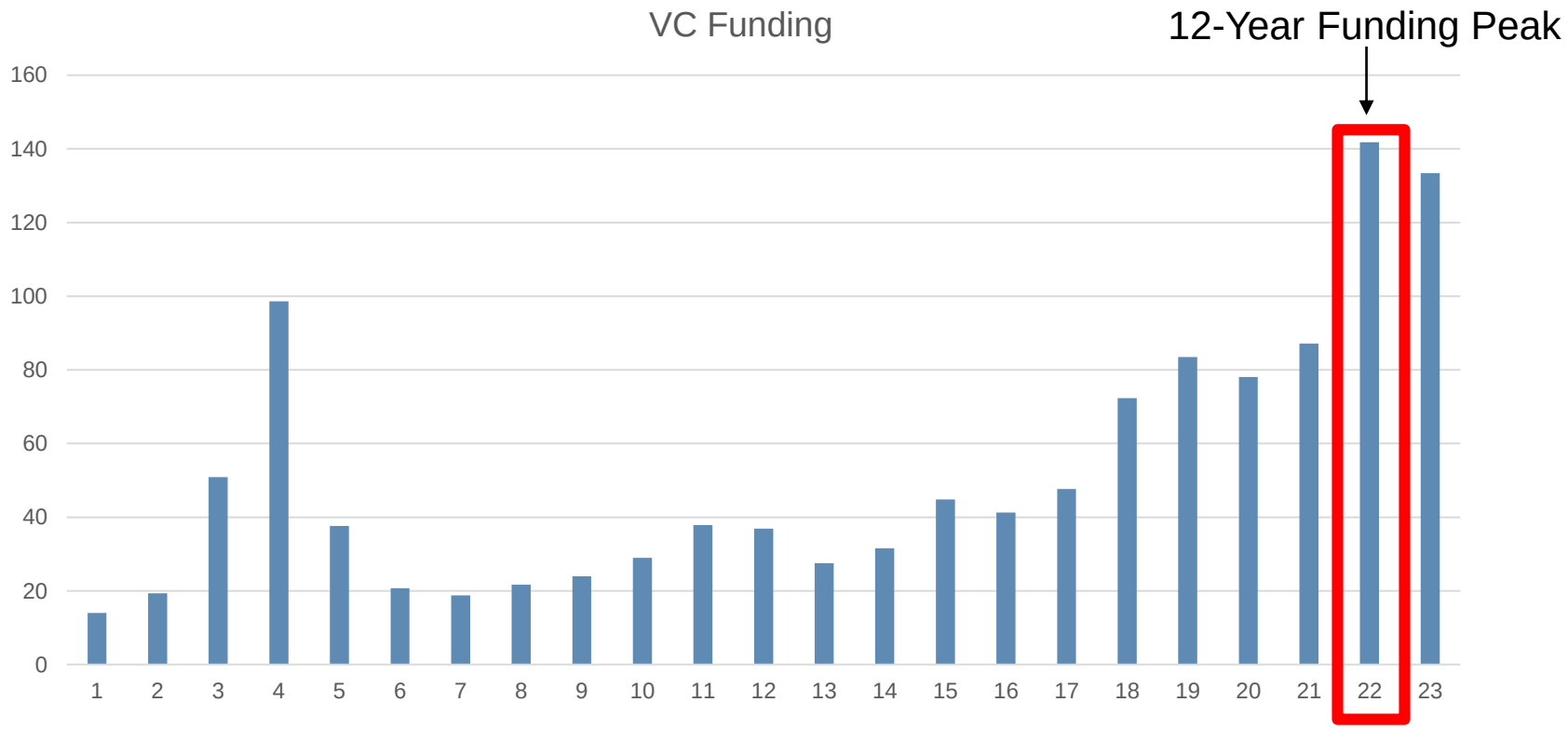
Source: Bloomberg

- NASDAQ index represents valuation and availability of capital for tech companies
- NASDAQ is near an all-time high for technology company valuations
- Significant valuation doesn't necessarily suggest we are in a bubble, but could indicate we are near the end of the public market cycle
- USG suppliers could buy one another with high stock prices and add instability

Mergers and acquisition can cause instability in supplier base

VC Funding Trends May Show a Peak

Was 2018 the peak for VC funding?



Source: Aerospace Analysis of Pitchbook / PriceWaterhouseHouseCoopers MoneyTree / National Venture Capital Association

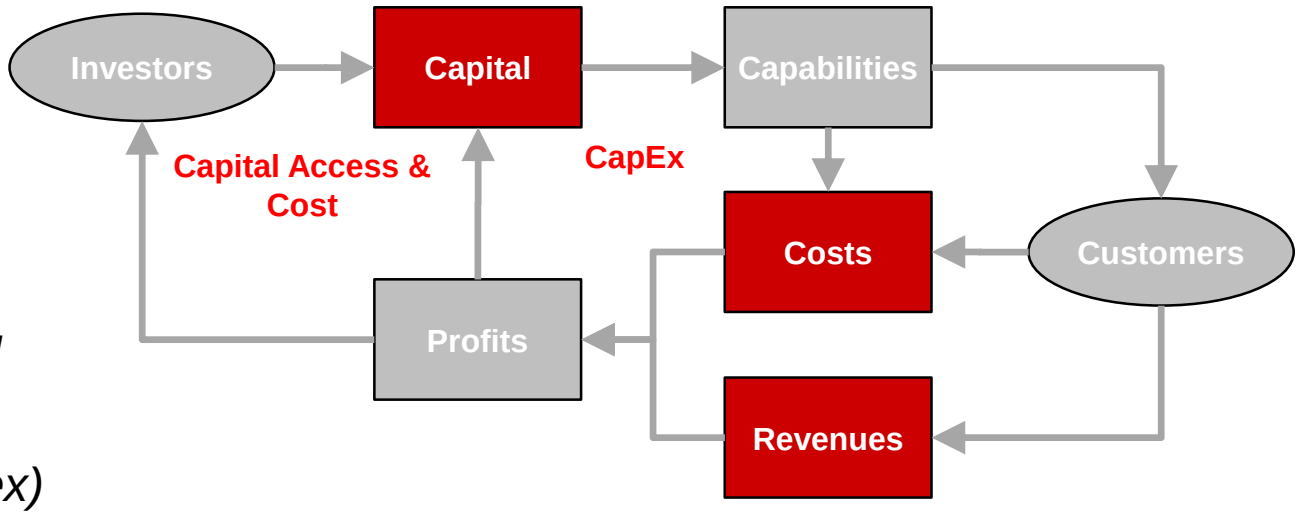
- 2018 VC funding has passed the 2000 dot-com bubble funding levels
- Doesn't mean we are in a bubble, but suggests we are in tail-end of cycle
- If USG begins using more start-up capabilities and VCs stop funding…then what?

Increased use of VC-backed start-up capabilities could increase USG vendor risk

Economic Levers Characterization Study

Identify and examine economic lever options to enhance market growth

- USG is interested in maximizing the benefits of the commercial GEOINT market and looking into ways to promote growth and sustainability of the market
- However, commercial imagery providers face economic barriers that must be overcome in order to achieve satellite deployment and sustainable operations:
  - *Inadequate revenues*
  - *Unbearable operational costs*
  - *Insufficient access to capital and/or high cost of capital*
  - *High Capital Expenditure (Capex) requirements*



- USG is interested in exploring "economic lever" options to provide assistance with overcoming economic barriers, which would then enable the availability of USG desired commercial GEOINT capabilities

Potential Economic Lever Options

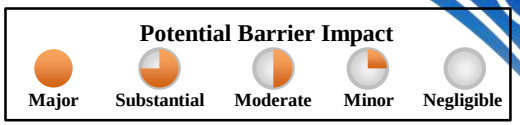
Levers that may be employed by USG to enhance the likelihood of the availability of desired capabilities and sustainability of products/services

Revenue Enhancement (RE)	Direct Financial Assistance (DF)	Indirect Financial Assistance (IF)	Public-Private Partnerships (PPP)	Policy & Regulatory Changes (PR)
(RE1) Long-term contract	(DF1) CapEx cost sharing	(IF1) Loan guarantees	(PPP1) Government Furnished Equipment	(PR1) Streamline CRS licensing process
(RE2) Purchase access to real time feed and data library	(DF2) Research & Development cost sharing	(IF2) Investment tax credits	(PPP2) Government provides technical & consulting services	(PR2) Greater government burden of proof in licensing
(RE3) Prepayment for services	(DF3) Grants	(IF3) Purchasing cooperative for commercial providers	(PPP3) Cooperative research and development agreements	(PR3) Relax resolution limits
(RE4) Purchase satellite(s) in commercial constellation	(DF4) Loans	(IF4) Introduction to capital sources (debt and equity)	(PPP4) Government-owned & contractor operated	(PR4) Improve policy implementation
(RE5) Hosted payload	(DF5) Preferred stock investment through intermediary	(IF5) Reference for due diligence	(PPP5) Space and launch cost share with commercial operation & marketing	
(RE6) Option-based services	(DF6) Common stock investment		(PPP6) Government-owned and -operated with commercial sales	
(RE7) Premium priced services	(DF7) Convertible debt in seed		(PPP7) Use of government ground stations or facilities	
(RE8) Add CRS provider to GSA schedule	(DF8) Tradeable tax credits		(PPP8) Government consortium to CapEx cost share with a commercial entity	
(RE9) Guarantee level of demand	(DF9) Matching grants for capital from investors and venture capitalists		(PPP9) Government supports dual-use small launch capability	

Note: The list is not meant to be exhaustive, but a representative subset of possible economic levers

The study identified and characterized a broad survey of potential levers that provides a general sense of different types of lever options that may be available, but it is not a comprehensive list

Example of Generalized Impacts and Relative Effectiveness of Economic Levers



Revenue Enhancing Economic Levers		Revenue		Operating Expense		Capital Expenditure		Capital Access & Cost	
		Emerg.	Est.	Emerg.	Est.	Emerg.	Est.	Emerg.	Est.
RE1	Long-term contract								
RE3	Prepayment for services								

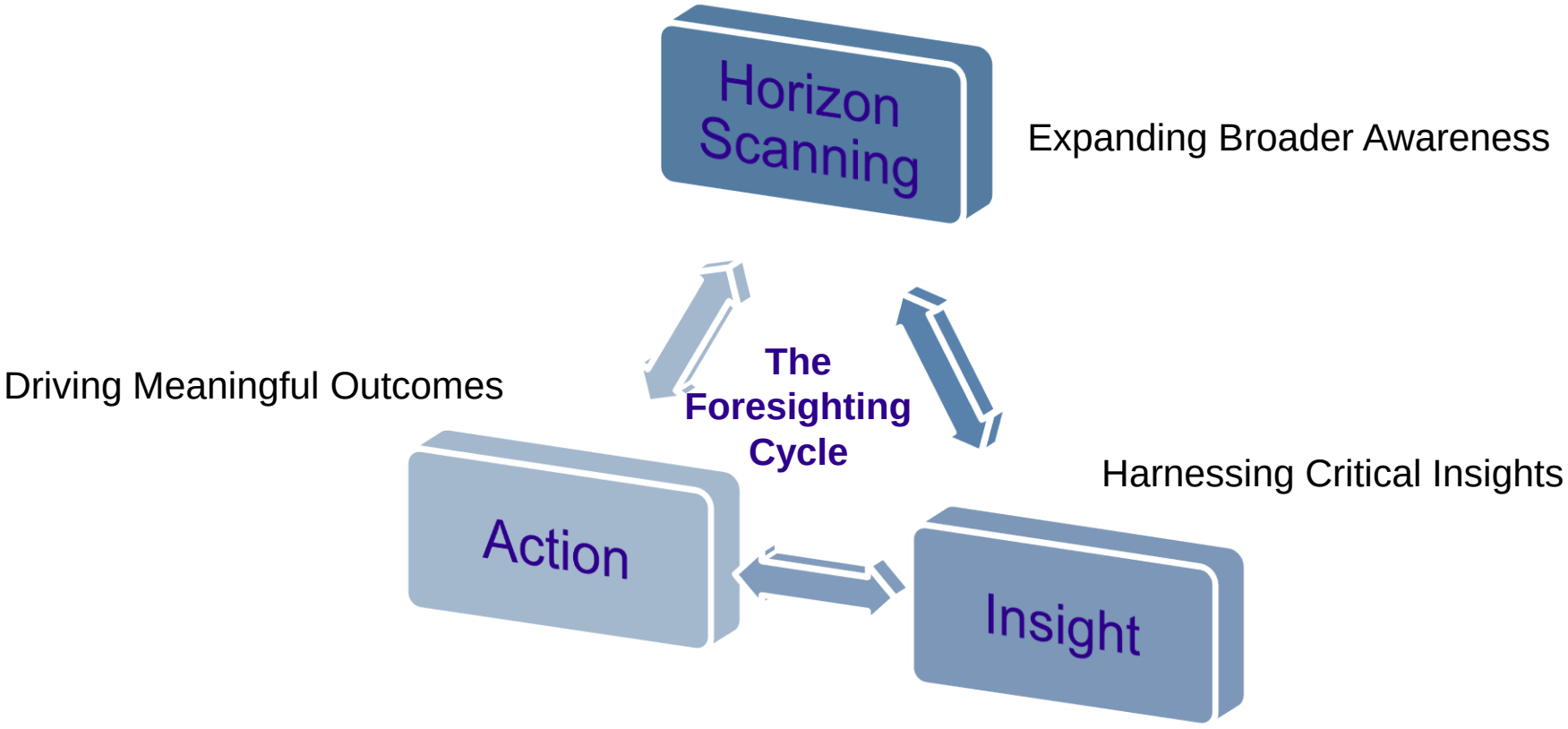
Direct Financial Assistance Economic Levers		Revenue		Operating Expense		Capital Expenditure		Capital Access & Cost	
		Emerg.	Est.	Emerg.	Est.	Emerg.	Est.	Emerg.	Est.
DF1	CapEx cost share								
DF2	Research & development cost share								

Policy & Regulatory Economic Levers		Revenue		Operating Expense		Capital Expenditure		Capital Access & Cost	
		Emerg.	Est.	Emerg.	Est.	Emerg.	Est.	Emerg.	Est.
PR1	Streamline commercial remote sensing licensing process								
PR3	Relax resolution limits								

Note: Relative comparison scoring can be compared vertically, not horizontally

Economic Lever selection is highly context dependent and would require further analysis

The Three Principles of Foresight



Foresight Cultivates Innovative Solutions and Maximizes Investment Impacts for the Future Venture

Shocks: Post-COVID Geopolitical Impacts for Space

Report Highlights for ACCRES

- The COVID-19 pandemic has highlighted a need for greater clarity in our objectives, nationally and in space

- It lifted a veil and let us see ourselves and others
  - Fragility that already existed in the commercial market
  - Brittle supply chain
  - Desire for our adversaries to increasingly leverage moments of disruption to their advantage
  - The value that space has in observing changes on Earth and its interdependencies

- Whereto from Here for CRS?
  - Space is part of *the* Enterprise, must have holistic approach
  - Need for clarity in national objectives, what are we trying to achieve?
  - Essential to move from reactionary to proactive measures
  - Thinking bigger and bolder: accelerating and sustaining progress in commercial and scientific endeavors near-Earth and beyond

There are limited windows of opportunities to act in the near-term that will define what space will look like 10, 20+ years in the future

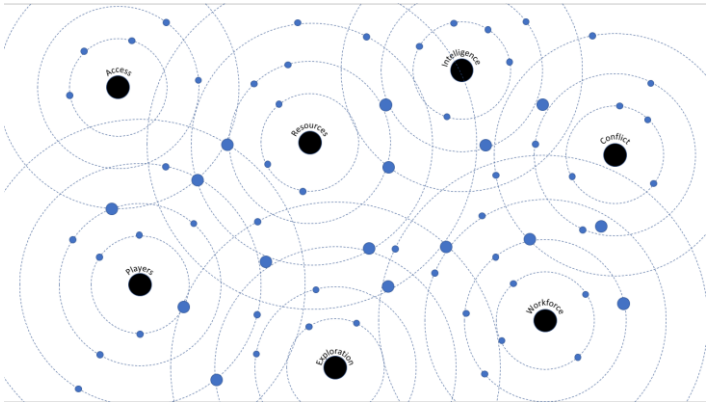
https://www.afwic.af.mil/Portals/72/Documents/AFWIC%20Global%20Futures%20Report_FINAL.pdf?ver=2020-06-18-124149-070

Expanding Mindsets: Futures Map

Exploring the Future Possibilities of the Space Enterprise

7 Core Themes:

- **Intelligence Infrastructure** – artificially "incubated" information available on-demand
- **Conflict** – modalities and landscapes that change continuously and at exponential speed
- **Workforce** – the skills, capabilities and social environments to deliver the future
- **Resources** – physical and virtual space-based "jewels" that fuel exploration, development, and benefits to earth
- **Access** – physical and virtual delivery, usage, and connectivity, from earth to space and intra-space
- **Players** – explorers, entrepreneurs, innovators, government leaders, service providers, and societal elements of the space ecosystem
- **Exploration** – the emergence of a space-faring society



https://aerospace.org/aerospace-presents-pathfinders-guide-space-enterprise

Want to learn more? Email us at Futures@aero.org